WHAT IS CLAIMED IS:

1. A sheet separator for an automatic document feeder for separating and feeding a first sheet and a second sheet adjacent to the first sheet sequentially, the sheet separator comprising:

a separating roller driven to rotate by a driving device;

a friction roller having a first rotating state, in which the friction roller is driven to rotate by the separating roller, a second rotating state, in which the friction roller is driven to rotate by the second sheet, and a stationary state, in which the friction roller is stationary, wherein in the stationary state of the friction roller, the separating roller directly feeds the first sheet, and the friction roller pushes the second sheet toward the first sheet so as to make the first sheet slide on the second sheet;

a first shaft inserted into the friction roller to provide a damping torque for stopping the rotation of the friction roller, and

a force-applying mechanism for pushing the separating roller against the friction roller.

2. The sheet separator according to claim 1, wherein the friction roller is selectively rotatably mounted to the first shaft, and the first shaft provides the damping torque for stopping the rotation of the friction roller according to a damping force between the first shaft and the friction roller.

3. The sheet separator according to claim 1, wherein the force-applying mechanism is a resilient mechanism for pushing the separating roller and the friction roller against each other using a resilient force.

4. The sheet separator according to claim 3, wherein the resilient mechanism

comprises a spring.

5. The sheet separator according to claim 1, wherein the force-applying mechanism is a gravity mechanism for pushing the separating roller and the friction roller against each other using a gravity force.

6. The sheet separator according to claim 5, wherein the gravity mechanism comprises a counterbalance fixed to the first shaft.

7. The sheet separator according to claim 5, wherein the gravity mechanism comprises a counterbalance fixed to the friction roller.

8. The sheet separator according to claim 1, wherein the force-applying mechanism is a magnetic mechanism for pushing the separating roller and the friction roller against each other using a magnetic force.

9. The sheet separator according to claim 8, wherein the magnetic mechanism comprises a magnet, and the first shaft is made of magnetic material and is attracted by the magnet to push the friction roller toward the separating roller.

10. The sheet separator according to claim 8, wherein the magnetic mechanism comprises a fixed first magnet and a second magnet attached to the first shaft, and the first magnet attracts the second magnet to push the friction roller toward the separating roller.

11. The sheet separator for the automatic document feeder according to claim 8, wherein the magnetic mechanism comprises a fixed first magnet and a second magnet attached to the first shaft, and the first magnet repels the second magnet to push the friction roller toward the separating roller.

12. The sheet separator for the automatic document feeder according to claim 2, wherein the friction roller comprises:

an outer column formed with a first hole; and

an inner column formed with a second hole fit with the first shaft, the inner column being arranged within the first hole of the outer column.

13. The sheet separator according to claim 12, wherein the inner column comprises:

a first column; and

a second column connected to the first column, the inner column being fixed to the outer column through the first column.

14. The sheet separator according to claim 12, wherein the inner column is formed with a long slot extending along an axial direction of the first shaft, and the friction roller further comprises a resilient member, the inner column is fit with the resilient member and shrunk to contact the first shaft to produce the damping torque.

15. The sheet separator according to claim 14, wherein the resilient member is a helical spring.

16. The sheet separator according to claim 14, wherein the resilient member is an elastic ring.

17. The sheet separator according to claim 1, wherein the damping force is a friction force.

18. The sheet separator according to claim 1, wherein the damping force is a magnetic drag force.

19. The sheet separator according to claim 1, further comprising a brake mechanism, which is selectively rotatably mounted to the first shaft, the brake mechanism providing the damping torque to stop the rotation of the friction roller according to a damping force between the first shaft and the brake mechanism, wherein the friction roller is fixed to the first shaft.

20. The sheet separator according to claim 19, wherein the brake mechanism comprises:

a support formed with two holes and gaps communicating with the holes; and

two elastic sleeves for providing the damping torque for the first shaft inserted into the elastic sleeves.